

## **Report for 2001ME2241B: A Pilot Estuarine Component to the PEARL Database**

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Report Follows:

## **A Pilot Estuarine Component to the PEARL Database**

### **Final Report -July 8, 2002**

The long-term goal of the two- year, four-phase initiative was to develop a database that would allow information transfer among volunteer monitoring groups and data managers in estuaries. The project was focused on adapting the PEARL (Public Educational Access to Environmental Information) Project's database to include a larger watershed approach, using the 8 digit HUC framework and housing and providing access to data on lakes and ponds, estuaries and embayments, rivers and streams. The goal of Phases I and II of this seed project was to research and design an approach to adapt the present PEARL database to include estuarine monitoring data (*Year one*).

The results of this project were to utilize the PEARL GIS framework to build a similar database for housing water quality data related to estuaries and coastal projects. It was to establish the foundation on which to build the pilot database and to begin populating it with data from across the state. Benefits were to include: improved accessibility of the data in useful formats for agencies, community leaders, researchers, and citizens, better likelihood that volunteer-derived data is used by decision makers, and improved credibility and enhanced participation of the many volunteer monitoring programs in the state of Maine.

The following was to be accomplished in year one:

- Phase I: *Research database design and assess status and quality of volunteer data.* Research design options for improving PEARL and adapting it to include an estuarine component.
- Phase II: *Design the database.* Make recommendations for the necessary hardware and software (for delivery and for the user), data entry, data quality assurance, maintenance, costs for subsequent phases, and reevaluate timeframe for Phases III and IV.

#### **The Phase I tasks were addressed as follows:**

Tasks: *Research database design and assess status and quality of volunteer data*

- Establish a Data Assessment Team (DAT) made up of PIs, representatives from MCP, UMCE, DEP and UMaine, and name a leader for the team  
The database team was active from April 2001 to November 2001. Molly Schauffler, Todd Janeski, Lee Doggett, Sarah Gladu, Paul Anderson and Esperanza Stancioff served on the DAT. Paul Anderson and then Esperanza Stancioff served as the team leader for the group  
.
- Review development options for an Internet database for coastal volunteer water quality monitoring data (e.g., VB/MO/Access; ArcIMS/Java/Oracle; Imagemaps/DBF tables); assess current PEARL technical approach for feasibility. (*Noonan*)  
Tom Noonan reviewed the Internet database options and recommended using Oracle for the future of Pearl. He assessed that Pearl had the technical ability to accommodate the coastal monitoring program within the database with expansion.

- Review existing on-line databases for similar projects, navigation assessment, data presentation, and public education value. (*Noonan; DAT*)

This information, while a review may have been conducted, was not made available to the DAT.

- Assess the existing application approach for PEARL to determine compatibility with the Shore Stewards Volunteer Monitoring data. Anticipated changes to PEARL development will be included in the assessment, including changes to any hardware and software, consideration will be given to whether or not project integration will hinder the performance or usability of any individual project (*Noonan*).

While this was verbally expressed, no written information was provided. However, it was assessed that compatibility was not a problem and anticipated changes to developing PEARL to meet the needs of the Coastal Monitoring component would not hinder the individual projects involved in PEARL.

- Interview or survey current volunteer data managers to estimate the amount and quality of volunteer data, identify compatibility and management considerations, and data storage, access, and data user needs. Summarize this information for the Technical Coordinator to incorporate into the database design (*DAT*)

The questions asked of the Maine Shore Stewards Advisory Committee in April 2001 to provide information to Tom Noonan were the following:

- ✓ Name of group/organization
- ✓ Location/region
- ✓ Time frame for data set (active or historical)
- ✓ Format of data (electronic or paper)
- ✓ What software was used
- ✓ How much data-# of records
- ✓ Station locations digitized? Mapped? Nomenclature?
- ✓ Level of quality control/quality assurance
- ✓ Parent project (CL/PIM, DMR, Watershed)
- ✓ Scope of Monitoring (tidal, estuarine, watershed)

Coastal groups were surveyed and the resulting information was entered into a table and provided to Noonan (May 14, 2001). Datasheets were gathered representing the coastal groups and a CD-ROM of the digitized sites were submitted.

*Deliverables:* Report of research findings and recommendations that specifically address the possibility of adapting PEARL to include estuarine volunteer water quality monitoring data.

Reports from Noonan were verbal.

## **Phase II: *Design the database***

Tasks:

- *Noonan* will make final determinations concerning the Internet database application design with consideration of the findings and feedback from all PIs and the Data Assessment Team.

Noonan met with the DAT to show the updated version of PEARL that he had improved. How this would apply to the coastal component to be developed and added was explained in technical language.

- Determine data formatting standards and revisions necessary to meet selected Internet database requirements. (*Noonan and Data Assessment Team*)

This was briefly discussed.

- Identify necessary equipment, hardware and software and make a recommendation to PI's and Data Assessment Team. (*Noonan*)

Noonan suggested that Oracle be used for the future of PEARL.

- Design a process for data submittal that assures the quality of the data prior to their entry in the on-line database. (*Noonan and Data Assessment Team*)

This was discussed very briefly.

- Draft a database schema or database prototype to represent the comprehensive design of the database. (*Noonan*)

This was discussed.

*Deliverables:* Prepare a final project report, including database schema, from Phases I and II that will include recommendations for the next phases (III and IV) of database development. These recommendations will be based on the most appropriate database design, specific metadata requirements, hardware and software needs, and data management systems. (*Noonan*)

See Final Report attached that Noonan submitted to the DAT.

Recommendations for the future for the Coastal On-line Database from the DAT: Phase I and Phase II, which were completed, revealed to the Data Assessment team and to the collaboration of agencies involved that the immediate needs of the coastal monitoring effort were in contrast to the immediate future of PEARL. The Data Assessment Team has opted to take this project in another direction. In the future, it would be desirable to include the coastal data in the PEARL database.